a.) Amendments to Specification

Replace the paragraph beginning at page 1, line 11, in the specification as originally filed, with the following rewritten paragraph:

-- The present application claims the benefit under 35 U.S.C. 119(e) ~~of priority~~ of copending provisional patent application 60/195,636, filed on 04/07/2000, which is hereby incorporated by reference.--

Replace the paragraph beginning at page 1, line 30, in the specification as originally filed, with the following rewritten paragraph:

-- In order to provide passive coupling alignment between ~~opticalfibers~~ optical fibers and IO waveguides, IO chips may have V-grooves aligned ~~colinearly~~ collinearly with the waveguides. An optical fiber disposed in the V-groove is automatically aligned with the IO waveguide.--

Replace the paragraph beginning at page 3, line 26, in the specification as originally filed, with the following rewritten paragraph:

-- The present invention also includes a method for bonding optical fibers to an optical device (e.g. IO chip or optoelectronic submount). --

Replace the paragraph beginning at page 4, line 1, in the specification as originally filed, with the following rewritten paragraph:

-- Fig. 2 shows a second perspective view of the ~~fibr~~ fiber array where the fiber array has a lid. --

Replace the paragraph beginning at page 4, line 32, in the specification as originally filed, with the following rewritten paragraph:

-- Fig. 13 shows a cross sectional view of the front portion where the V-groove in the front portion is large so that ~~is~~ it does not fully define the location of the optical fiber.--

Replace the paragraph beginning at page 5, line 24, in the specification as originally filed, with the following rewritten paragraph:

-- Fig. 1 shows a perspective view of an open face optical fiber array according to the present invention. The open face fiber array has optical fibers 20 disposed in precision V-grooves 22 of a V-groove chip 23. For clarity, one V-groove in the array does not have a fiber. The array has a rear portion 24 and a front portion 26. The front

and rear portions may be the same or different lengths (in the direction of the V-grooves). In the rear portion 24, the optical fibers are bonded to the V-groove chip 23; in the front portion 26, the optical fibers are necessarily NOT bonded to the V-groove chip 23. In the present ~~speification~~ specification, the rear portion 24 is defined as a region where the fibers are bonded to the chip 23. The front portion is defined as a region where the optical fibers are not bonded to the chip 23. Preferably, the optical fibers 20 are bonded to the rear portion 24 with glue 28. Optionally, the optical fibers can be bonded to the rear portion 24 with solder or other materials or by using other techniques (e-g. thermo-compression bonding). The front portion is 1-10 millimeters long. The rear portion is 0.2-5 millimeters long.--

Replace the two paragraphs beginning at page 7, line 1, in the specification as originally filed, with the following rewritten paragraph:

-- Fig. 2 shows another perspective view of the open face fiber array. The array in Fig. 2 has an optional lid 32 covering the rear portion 24. The lid 32 is preferably glued to the optical fibers and chip 23. The array has a front face 34 at the edge of the front portion 26. The optical fibers 20 have fiber endfaces 36. The endfaces can be cleaved or polished; preferably, the endfaces 36 are polished. The fiber endfaces 36 can be located within 1 millimeter of the front face. Also preferably, the fiber endfaces 36 are flush with the front face 34. In a ~~particualrly~~ particularly preferred embodiment, the front face 34 and fiber endfaces 36 are polished in the same polishing step. This assures that the ~~fibr~~ fiber endfaces 36 and the front face 34 *are* flush.

Fig. 3 shows a perspective view of an integrated optics chip structure that can be coupled to the optical fiber arrays of the present invention. The integrated optics (IO) 41 chip has waveguides 38 disposed in a cladding material 40. The waveguides and cladding are disposed on a substrate chip 42 (e.g. made of silicon). The waveguides 38 and cladding can be made of silicon, polymer materials or silica. V-grooves 44 for aligning optical fibers are disposed in alignment with the waveguides 38. The waveguides 38 intersect a sidewall 46 that is smooth enough for optical coupling to the waveguides. The V-grooves 44 and waveguides 38 are separated by a cut groove 48. The cut groove may

be a dicing saw cut groove, for example. The use of a dicing saw cut groove in IO chips is known in the art. --

Replace the paragraph beginning at page 8, line 25, in the specification as originally filed, with the following rewritten paragraph:

-- After ~~tha~~ the optical fibers 20 are disposed in the v-grooves 44, glue or solder is applied to bond the fibers to the IO chip. Preferably, the optical fiber endfaces 36 are butted against the waveguides 38. The interface between the optical fibers and the waveguides can be oriented at a nonperpendicular angle with respect to the optical fibers and waveguides to reduce backreflections. In this case, the front face 34 and the cut groove 49 should be cut at precisely matching angles. --

Replace the paragraph beginning at page 11, line 24, in the specification as originally filed, with the following rewritten paragraph:

--Fig. 11 shows another aspect of the present invention where the array has a second wick stop trench 8O. The first wick stop trench 30 and second wick stop trench 80 divide the fiber array into three parts: the rear portion 24, a middle portion 82, and a bonded front portion 84. The fibers 20 are bonded to the rear portion 24 and the bonded front portion 84. The fibers are not bonded to the middle portion 82. Preferably, the fibers are in close contact with the V-grooves in the middle portion; the fibers must not be buckled or bent in the middle portion 82. Also, it is noted that the bonded front portion 84 is relatively short (preferably less than 1 mm long). Generally, the bonded front portion is 0.2-2 millimeters long. The rear portion is 0.2-5 millimeters long. The bonded front portion 84 must be shorter than the width of the cut groove 48 in the IO chip.--